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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/347,560	07/06/1999	JOHN ERIK HERSHEY	RD-24.997	4031

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EXAMINER
LIU, SHUWANG

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 09/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

H

Office Action Summary	Application No.	Applicant(s)	
	09/347,560	HERSHEY ET AL.	
	Examiner	Art Unit	
	Shuwang Liu	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-11 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 06 July 1999 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 and 5 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: on page 4, line 30, reference number "50".

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because there is no label for block 20 in figure 1. The block needs to have descriptive labels under 37 CFR 1.84(n) and 1.84(o).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1 and 6-8 are rejected under 35 U.S.C. 102(a) as being anticipated by Le Roy (US 5,822,363).

As shown in figures 1 3, and Le Roy discloses an encoder and a method for encoding a digital baseband signal in a spread spectrum communication system, said encoder comprising:

(1) regarding claims 1 and 6:

an exclusive "or" logic unit (12) having a first input for receiving said digital baseband signal (b_k);

a one bit delay unit (14) having an input coupled to the output of said exclusive "or" logic unit, said one bit delay unit having an output coupled to a second input of said exclusive "or" logic unit;

the output of said exclusive "or" logic unit providing an encoded digital baseband signal (d_k);

said encoded digital baseband signal coupled to a modulator (18) so as to modulate spread spectrum carrier signal (column 2, line 53-column 6, line 21 and column 7, lines 30-59).

(2) regarding claim 7:

further comprising the step of utilizing the encoded digital baseband output to modulate a spread spectrum carrier signal (generated by 16).

(3) regarding claim 8:

wherein the output of said “or” unit is delayed for one bit period (column 2, lines 19-23 and lines 58-64).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Le Roy in view of Hershey et al. (US 5,844,949).

Le Roy discloses all of the subject matter except the system is a geometric harmonic modulation communication system.

Hershey et al. teaches that a typical GHM coding scheme binary data is coded according to a differential phase shift keying (DPSK) method (column 4, lines 32-43).

One skilled in the art would have clearly recognized that the DPSK is a conventional method used in the GHM system whereby the GHM carrier is inverted or not inverted during a bit duration interval according to the binary state of the data so as the GHM receiver need not correct for frequency selective phase rotation. It would be desirable to have a GHM system with less sensitive to phase distortion introduced by non-linear transformers and resulting in a less complex system. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate DPSK coding scheme of Le Roy in the GHM system in order to allow the receiver need not correct for frequency selective phase rotation. In so doing, the GHM system is less sensitive to phase distortion introduced by non-linear transformers and resulting in a less complex system.

7. Claims 3-4, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Le Roy in view of Hershey et al. (US 5,844,949).

As shown in figure 2, Le Roy discloses a decoder and a method for decoding a digital baseband signal, comprising:

(1) regarding claims 3 and 10:

a one bit delay unit (22) having an input coupled to a filter (20) (column 2, lines 19-23 and lines 58-64);

a multiplier (24) having a first input coupled to the output of the filter, and a second input coupled to the output of said one bit delay unit;

a summer (26) coupled to the output of said multiplier (24);

a logic level (28) determiner coupled to the output of said multiplier said logic level determiner to provide a decoded digital baseband signal.

(2) regarding claim 4:

an encoder having:

an exclusive "or" logic unit (12) having a first input for receiving said digital baseband signal (b_k);

a one bit delay unit (14) having an input coupled to the output of said exclusive "or" logic unit, said one bit delay unit having an output coupled to a second input of said exclusive "or" logic unit;

the output of said exclusive "or" logic unit providing an encoded digital baseband signal (d_k);

said encoded digital baseband signal coupled to a modulator (18) so as to modulate spread spectrum carrier signal (column 2, line 53-column 6, line 21 and column 7, lines 30-59).

a decoder having:

a one bit delay unit (22) having an input coupled to a filter (20);

a multiplier (24) having a first input coupled to the output of the filter, and a second input coupled to the output of said one bit delay unit;

a summer (26) coupled to the output of said multiplier (24);

a logic level (28) determiner coupled to the output of said multiplier said logic level determiner to provide a decoded digital baseband signal.

Le Roy discloses all of the subject matter as described above except for specifically teaching (1) for a geometric harmonic modulation spread spectrum communication system and (2) an output of the delay unit coupled to the output geometric harmonic modulation Fourier transform unit, that is, the input of the decoder coupled to the output geometric harmonic modulation Fourier transform unit.

Hershey et al. teaches that (1) a typical GHM coding scheme binary data is coded according to a differential phase shift keying (DPSK) method (column 4, lines 32-43) and (2) the input of the decoder (33 in figure 3) coupled to the output geometric harmonic modulation Fourier transform unit

One skilled in the art would have clearly recognized that the DPSK is a conventional method used in the GHM system whereby the GHM carrier is inverted or not inverted during a bit duration interval according to the binary state of the data so as

the GHM receiver need not correct for frequency selective phase rotation. It would be desirable to have a GHM system with less sensitive to phase distortion introduced by non-linear transformers and resulting in a less complex system. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate DPSK coding scheme of Le Roy in the GHM system in order to allow the receiver need not correct for frequency selective phase rotation. In so doing, the GHM system is less sensitive to phase distortion introduced by non-linear transformers and resulting in a less complex system. Furthermore, it is well known that A Fourier Transform (FFT) module is needed in the receiver to perform a Fourier transform on the samples obtained at time t to result in Fourier coefficients in order to recover the message bits from the received signal. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate FFT, as taught by Hershey et al. coupled the input of the decoder of Le Roy in order to recover the message bits from the received signal.

(3) regarding claims 5 and 9:

Le Roy discloses all of the subject matter as described above (regarding claims 3 and 6-7) except the modulated spread spectrum carrier signal is coupled to a power line.

Hershey et al. teaches that the modulated spread spectrum carrier signal is coupled to a power line (abstract).

one skilled in the art would have clearly recognized that power lines exist in almost all the buildings. It is desirable to use the existing the power line in the buildings

to provide data transmission in order to reduce the cost for wiring another new line as the communication channel. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use power line as taught by Hershey et al. in the communication system of Le Roy because such feature provides the communication channel at lower cost.

(4) regarding claim 11:

It is inherent in the DPSK encoder that the logic circuit 28 is declaring a logical zero when said product is greater than or equal to zero, and otherwise declaring a logical one.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is (703) 308-9556.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Shuwang Liu
September 15, 2002

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes incorporated therein Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application